



Ginkgo: Potential Treatment for Post-COVID Cognitive Symptoms

Alleviation of post-COVID-19 cognitive deficits by treatment with EGb 761®: a case series.

Zifko UA, Yacob M, Braun BJ, Dietz GPH. Am J Case Rep. 2022 Sep 26;23:e937094.



Based on its pharmacological actions and efficacy in treating cognitive impairment, the well-defined, standardized *Ginkgo biloba* extract, EGb 761® has been suggested as a treatment to alleviate post-COVID-19 cognitive symptoms. Five cases are reported from a European outpatient clinic set up to treat neurological deficits for post-COVID-19 patients in July 2021. Patients had SARS-CoV-2 infection between December 2020 and July 2021, and subsequent concerns about cognitive dysfunction. COVID-19 disease in these patients was rated to be either mild, moderate, severe or critical according to the COVID-19 infection severity scale. They had an average age of 34.6 years, the average time from infection to first outpatient visit was 19.4 weeks and they all experienced neurological symptoms: fatigue (4/5), headache (2/5), hyposmia (decreased sense of smell; 3/5), depressive mood (2/5), position tremor (1/5) and autonomic dysfunction (1/5).

Neurological examinations, MRI brain imaging, and an EEG (electroencephalogram) were performed. Neuropsychological performance was assessed using the Montreal Cognitive Assessment (MoCA). The extent of cognitive deficits was quantified on the day of the initial assessment using the Clinical Global Impression Severity (CGIS) scale, and at follow-up using the Clinical Global Improvement or Change (CGIC) scale. The total possible score on the MoCA is 30 points, a score of 26 or above is considered normal. CGIS rates the severity of illness, ranging from one (normal, not at all ill) to seven (extremely ill). Most patients had CGIS scores (at baseline) of four (moderately ill). CGIC scores can range from one to sixteen: complete or nearly complete remission of all symptoms with no side effects (one); decided improvement with partial remission of symptoms and no side effects (five); and unchanged or worse, with adverse effects outweighing the benefits (sixteen). Patients were treated with 160 mg/day of standardized Ginkgo extract.*

Results

- Treatment with Ginkgo extract substantially improved or completely restored cognitive deficits.
 - Patients reported improved concentration, substantial alleviation of cognitive deficits (three patients experienced a partial remission of their cognitive impairment [CGIC 5]), and two showed a nearly complete remission of all cognitive symptoms (CGIC 1).
- Neuropsychiatric symptoms, fatigue and hyposmia also improved in several instances. *See Table 1 for more detail.*
- Patients had reported concentration and attention deficits during everyday activities. During treatment, the MoCA test result increased by 4 points to a score of 28 in patient 4. In all other cases, the test score was close to, or at the maximum achievable value of 30. Although clear subjective cognitive concerns were present before treatment, this deficit was in most cases not detectable using the MoCA (or additionally, the DemTect test in one patient). This suggests that the tests are not sufficiently sensitive to be used as a screening tool for post-COVID-19-related cognitive disturbances, unless the symptoms are very severe.
- None of the patients had any adverse effects due to the Ginkgo treatment.

Initial COVID-19 Severity; Complaints and Cognitive Test Results [†]	Additional Treatment	Result at follow-up
Patient 1, male, 33 years; first visit** 13 weeks		
moderate; marked attention deficit, headaches, nausea, depression, hyposmia CGIS 5, MoCA 29	acetaminophen 500 mg for headache treatment as needed	at follow-up (11 weeks): substantially alleviated cognitive complaints and fatigue; improved hyposmia CGIC 5, MoCA 30
Patient 2, female, 26 years; first visit** 35 weeks		
moderate; fatigue, attention disturbance, worsening of migraine, hyposmia CGIS 4, MoCA 30	ascorbic acid (2 x 500 mg/day)	at first follow-up (7 weeks): improved concentration and decreased fatigue at second follow-up (13 weeks [‡]): no concentration deficit CGIC 1, MoCA 30
Patient 3, female, 32 years; first visit** 22 weeks		
mild; moderate concentration and attention deficits CGIS 4, MoCA 29	–	at follow-up (4 months): substantially improved cognitive deficits CGIC 5, MoCA 29
Patient 4, female, 26 years; first visit** 9 weeks		
moderate; [§] hypotension with circulatory disturbance, serious cognitive deficits and fatigue CGIS 4, MoCA 24	continued sertraline (SSRI) for depression; midodrin hydrochloride (vasoconstrictor; ~3 x 61 mg/day)	at follow-up (7 weeks): improved concentration and decreased fatigue CGIC 5, MoCA 28
Patient 5, male, 59 years; first visit** 18 weeks		
severe, but was not ventilated; cognitive deficits, moderate depression, irritability, hyposmia CGIS 4, MoCA 30	initial (without Ginkgo): escitalopram (SSRI) and plant-based sleep aid [^] after first follow-up (Ginkgo initiated): ascorbic acid (2 x 500 mg/day)	at first follow-up (6 weeks): no change in cognitive deficits; improvement in depression, fatigue, irritability, hyposmia at second follow-up (6 weeks [‡]): complete remission of cognitive symptoms; continued stable mood CGIC 1, MoCA 30

Table 1. Clinical data of five patients treated with 160 mg/day of standardized Ginkgo extract (Egb 761®).

Notes: [†] when assessed at first visit ^{**} approximate time after COVID-19 infection [‡] time between first and second follow-up [§] patient had received one vaccination [^] containing Valerian, Passion Flower, Hops and Lemon Balm

Abbreviations: CGIC: Clinical Global Improvement or Change; CGIS: Clinical Global Impression Severity; MoCA: Montreal Cognitive Assessment; SSRI: selective serotonin reuptake inhibitor

*Comment

This standardized extract (Egb 761®) has a known composition: the daily dosage corresponded to 8 g of dried leaf, providing 38.4 mg of ginkgo flavone glycosides and 9.6 mg of terpenoids.

Key Finding

For five patients who were experiencing persistent symptoms of cognitive impairment for some time after COVID-19 infection, treatment with well-defined, standardized Ginkgo extract provided substantial or complete relief. Further clinical research is warranted.